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ABSTRACT

A study investigated the effect on reading comprehension of using semantic impressions as a previewing activity to provide an overall impression of a story's structure. Subjects, 31 eighth grade remedial reading students from a suburban junior high school, were divided into two groups: a treatment group that received semantic impressions as a prereading activity, and a control group. The semantic impressions--words extracted directly from a story--provided clues to the setting, characters, and major elements of the plot. A maximum of three words was used for each impression. The 19 clues were arranged vertically and marked with arrows to indicate clue order. After fifteen minutes of demonstration and instruction, students were given the impression and asked to link the clues together in the same manner and to generate a hypothesis story of their own. The next day, the students read their stories before being given a copy of the short story to read. After reading it, students from both groups were tested on it. Results indicated that students receiving the semantic impressions as a prereading treatment correctly answered a higher percentage (72%) of the comprehension questions than students who simply read the story (60%). A table of findings, examples of semantic impressions for two stories, and a student hypothesis story are appended. (EL)

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# The Use of Semantic Impressions as a Previewing Activity for Providing Clues to a Story's Episodic Structure.

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# The Use of Semantic Impressions as a Previewing Activity for Providing Clues to a Story's Episodic Structure

The inescapable lesson from reading research over the last decade is that we understand what is new to us in terms of what we already know. The significance of prior knowledge as a major factor in comprehension is supported by, and can be most readily explained by, a set of theories of human cognition that fall under the general rubric of schema theory (Rumelhart & Ortony, 1977). Schema theory suggests that our knowledge is represented in abstract units called schemes (Rumelhart, 1981). During reading these schemes function by providing "empty slots" which might be thought of as a set of expectations onto which the reader maps the segments of the text (Anderson, 1977). In the process of reading, our expectations are confirmed or disconfirmed as the slots become instantiated by the material being processed. In this way, the application of prior knowledge schemes enables the construction of a logical interpretation of the passage.

Emphasis on the role of prior knowledge in comprehension has created interest on the part of reading professionals in finding ways to help readers activate relevant knowledge schemes before and during the reading process. One approach has been to devise ways to preview a passage before it is read. The object

of a preview is to decrease the distance between the text and reader by helping the reader to retrieve relevant prior knowledge or by supplying the reader with advance information about the content of the material itself.

Thematic previews have been investigated as one means of increasing the proximity of reader and text. Dooling and Lachman (1971) gave subjects a thematic title or prepassage before reading vague metaphorical passages. On both a free recall and a paced binary recognition task, subjects receiving the title performed better than those not receiving the title. They concluded that the thematic title provides a scheme or surrogate structure to help in understanding such vague passages. Gardner and Schumacher (1977) investigated the effect of three types of prereading organizers (thematic prepassage, topic sentence, and no information) on recall of difficult subordinate and coordinate texts. They found that providing subjects with the thematic prepassage organizer facilitated recall to a greater degree than either topic sentences or no information. Using a different type of thematic preview, Bransford and Johnson (1973) found that subjects who were supplied with relevant information in the form of a picture about a passage prior to reading that passage demonstrated increased comprehension and recall scores.

Another previewing method for reducing the distance between reader and text is to provide readers with an overview

of the content of the material to be read. In several studies (Graves & Cooke, 1980; Graves, Cooke, & Laberge, 1983; Graves & Palmer, 1980; Slater, Graves, & Piche, 1985), subjects were given prior knowledge about the specific content of a story in the form of a written preview. The previews ranged from 400 to 600 words in length and provided students with a foundation for understanding the story by describing key elements about the plot, characters, point of view, tone, setting, and in some cases the theme. In other instances, definitions of difficult words and explanations of complex concepts were added to the existing list. These studies found that providing junior high students with detailed previews of difficult short stories increased recall as asssessed by a variety of comprehension measures. Similar results were obtained by Graves & Cooke (1980), when they provided eleventh grade students with oral previews prior to reading the stories.

Schema theory (Rumelhart & Ortony, 1977; Rumelhart, 1981) provides insight into a third possible previewing activity. One might investigate a previewing treatment that initiates activation of a general story scheme instead of providing thematic or specific content knowledge. This would entail giving subjects a very minimal amount of specific information from a passage, yet in doing just that, engage them in the formulation of their own hypotheses regarding the to-be-read story by providing them with clues that stimulate relevant story

schemes. One way to do this would be to provide these minimal clues to the reader in the form of semantic impressions of the structure of a story. To illustrate, Figure 1 presents a set of semantic impressions for "The Tell-Tale Heart" by Edgar Allen Poe. The role of the clues is to provide an overall impression of the structure of the story sufficient to stimulate the reader to begin constructing an adequate and comprehensible account for the configuration of clues.

Theoretically, the clues could affect the reader in two ways. First, if the reader has never read the specific story from which the impressions were selected, current schema theory (Rumelhart, 1984) would suggest that the reader will begin searching for a promising scheme to account for the particular array of clues. In the case of "The Tell-Tale Heart," the clues are most likely to suggest some sort of murder scheme that may ultimately conclude with a confession. As an illustration, Figure 2 presents a story hypothesis written by an eighth-grade student using the semantic impressions extracted from "The Tell-Tale Heart." Note that the central events of the hypothesized story depict a murder scene and confession complete with incidents similar to those of the original tale. Of course, should the reader already be familiar with that actual story, a second way the clues may act is as a retrieval device. In this instance, one would expect general story recollection to occur. In fact, adults who have previously read the Poe tale

quite often identify the impressions in figure 1 as refering to "The Tale-Tell Heart" after a brief period of exposure.

As a previewing treatment, semantic impressions provide only a minimal amount of content clues, but according to schema theory they may be effective because they engage the reader in the process of relevant hypothesis formulation with regard to the to-be-read story. Rumelhart (1984) in an attempt to track the hypothesis testing process of individuals during reading, presented stories to subjects one line at a time. Subjects were asked to give their ongoing interpretation of the story after each line. Rumelhart discovered that readers developed strong impressions about certain aspects of each story. In many cases, a single word in the line of a story was enough to suggest a totally new interpretation for the story. Rumelhart (1984) also found that those subjects who were asked to give their interpretation after each line read more carefully than other experimental groups.

The use of <u>semantic impressions</u> as clues for formulating a <u>story hypothesis</u> prior to reading ought to initiate a similar interactive process of interpretation. The use of these clues combined with writing ought to engage subjects in a continual process of searching for a workable scheme. Once an hypothesis story is devised, it can serve as a source for predictions about the events of the upcomming story. These predictions would then be confirmed or disconfirmed in manner identical to that

described by Rumelhart (1984) for the general process of understanding as the reader encounters the details of the actual story. In this way, semantic impressions could get the reader to formulate their own content preview and, thus, have a subsequent beneficial effect on story comprehension and retention. The purpose of the present study is to investigate this possibility.

## METHODS

### Subjects

A total of 31 eight-grade remedial reading students in a suburban junior high school participated in the study. The reading grade equivalent range was 5.0 - 6.0, based on Science Research Associates (1979) achievement series test scores from the previous year. The students from two reading classes were randomly assigned treatment conditions. Thirteen subjects received semantic impressions as a prereading activity, while eighteen subjects in the control group received no previewing activity before reading the assigned story.

### Materials

The passage used in this investigation was a short story by Victor Canning (1977) entitled "Never Trust a Lady". The readability of the 1687 word passage, as computed by the Fry (1978) and Dale-Chall (1954) formulas, fell within the seventh to eighth grade range. The story describes a locksmith named Horace who has a mania for rare, old books. Once a year he

steals jewels to pay for the books. This year, however, he is caught by a pretty young lady who tricks him into opening a safe. Horace is later arrested for the jewel robbery and ends up as the assistant prison librarian because no one believed his story about the young lady claiming to be the owner of the house.

Semantic impressions were developed by extracting words directly from the story that provided clues to the setting, characters, and major elements of the plot. A maximum of three words were used per impression. The 19 clues were arranged vertically and marked with arrows to indicate clue order. Figure 3 presents the set of semantic impressions from the story "Never Trust A Lady" (Canning, 1977) that were used in the study.

Procedure

For the semantic impressions group, the experimenter first presented an example set of clues unrelated to the to-be-read selection, "Never Trust A Lady". Next, he introduced the process of composing an hypothesis story using these sample clues. During this process, the 13 subjects in the semantic impressions group contributed suggestions as to how the sample clues might be connected. As the subjects generated ideas that linked the clues together, the experimenter interwove them into an hypothesis story. This activity took approximately 15 minutes. After this, the experimenter distributed the set of

semantic impressions for "Never Trust A Lady." The students were instructed to link the clues together in the same manner demonstrated and to generate an hypothesis story of their own. They were told that the closeness of match with the author was not important, but that they should try to link the clues together into a logical guess of what the to-be-read story could be about. All students wrote their hypothesis stories within 60 minutes. During the hypothesis generation and story writing phase for the semantic impressions group, the read-only control group went to a second room where they read novels of their own choice.

On the following day, the students in the semantic impressions group each reread his or her own hypothesis story. All students in both groups were then given a copy of "Never Trust A Lady" and read it for the first time. When they finished reading the assigned story, all subjects completed the same 24 item short-answer posttest. Of the 24 comprehension questions, 18 required literal recall of the text, and 6 required inferential thinking. All subject completed the story and comprehension posttest within 45 minutes.

## RESULTS

The effect of using semantic impressions as a previewing activity on story comprehension was assessed using a t-test for independent groups. The means and standard deviations for the preview (semantic impressions) and no preview (control) groups

are presented in Table 1. The dependent measure was the number of correct answers on the 24 item posttest. The results revealed a significant difference between the treatment conditions, $t(df=29) = 2.23$, $p < .05$. The students who engaged in the preview activity ($\bar{X} = 17.38$) correctly answered more of the comprehension questions than students ($\bar{X} = 14.50$) who simply read the story. These results suggest that the use of semantic impressions as a previewing strategy to help students generate relevant hypotheses linking story characters and events, facilitates comprehension of the story when it is subsequently read for the first time.

## DISCUSSION

As expected, students receiving the semantic impressions as a prereading treatment correctly answered a higher percentage (72%) of the comprehension questions than students who simply read the story (60%). Additionally, unlike other successful previews (Graves & Cooke, 1980; Graves & Palmer, 1980; Graves, Cooke & Laberge, 1983) semantic impressions did not give away large amounts of story content in order to improve comprehension. In fact, when creating logical stories from impressions, the readers were involved in formulating their own preview content.

Questions regarding the way in which semantic impressions function in accordance with schema theory deserve further discussion. How do students arrive at an interpretation for a

series of impressions when such minimal amounts of information are present? Rumelhart (1984) in experimenting with one-line-at-a-time reading, found that "certain words and phrases appeared to suggest from the bottom-up certain frameworks of interpretation (p. 17)." Semantic impressions appear to function in much the same way. Similarly, Rumelhart (1984) also found that when subjects described their ongoing interpretations, they frequently described elements of a story which were not mentioned in the actual text. This is also the case when students write stories based on semantic impressions.

An appropriate concern at this point regards the accuracy of the student hypotheses. Can an inaccurate hypothesis story serve to confound the comprehension process for the student even further? The results of this experiment do not suggest this to be the case, however, further analyses are being conducted to assess to what extent closeness of match between the reader's guess and the actual text is necessary for there to be a facilitative effect on comprehension. Nevertheless, one need only be minimally acquainted with the research on schema theory to realize that reading is thought to be a process of disconfirmation of one's expectations as well as confirmation of one's expectations (Rumelhart, 1984). In this respect, the thought processes involved in evaluating the goodness-of-fit of an hypothesis story based upon semantic impressions should markedly resemble the thought processes involved in the actual

understanding of written passages.

Further Investigations

Semantic impressions give students an opportunity to write. Recent story grammar research (Mandler, 1985) may provide insight into ways to categorize student story types with intentions of making predictions about a student's reading ability. Semantic impressions may also be used to guide students while writing summaries of stories. For example, they may assist students in focusing on important story information and help them to avoid the error of attributing equal value to every aspect of a story. Finally, the impressions may prove to be a promising notetaking technique for narrative texts, particularly when viewed in the light of research on the spatial-arrangement mnemonic (Bellezza, 1983).

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Figure 1.

Semantic Impressions for "The Tell-Tale Heart" By Poe

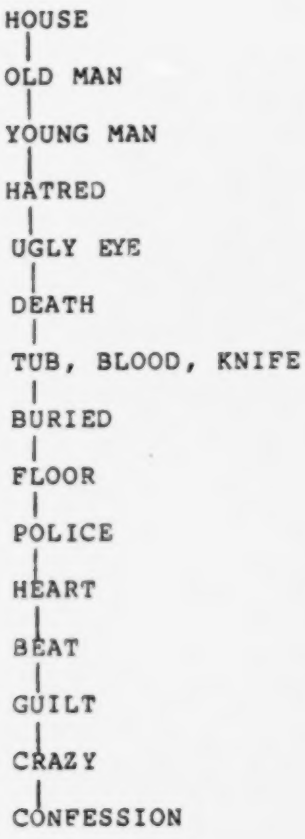

Figure 2

An Eighth Grade Student's Hypothesis Written From the Clues to "The Tell-Tale Heart" by Poe.

There was a young many and his father, an old man. They lived in a house on a hill out in the bouniey's. The old man hated his son because he had an ugly eye.

The young man was asleep in his bedroom when he was awakend by screaming. He went to the bedroom and saw his father laying in the tub. There was blood everywhere and a knife through him.

The young man found a tape recording hidden behind the door on the floor. He turned it on there was screaming on the tape. The young man started to call the police, but then he stopped and remembered what his mother had told him. She had told him that he had a split personality. So he called the police and confessed to being crazy and killing his father. His heartbeat was heavy as he called.

Figure 3.

Semantic Impressions For "Never Trust A Lady" By Canning

Table 1

Mean Comprehension Scores for the Previewing Conditions

| Groups | n | Mean | SD |
|---|---|---|---|
| Semantic Impressions | 13 | 17.38 | 2.36 |
| No Preview | 18 | 14.50 | 4.19 |